

Application Serial No.: 10/031,105
Amdt. dated February 8, 2006
Reply to Office Action of November 14, 2005

LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Currently Amended) A spreader system for lifting containers comprising:
 - a spreader frame;
 - at least one telescopic beam telescopically movable in said spreader frame;
 - at least one locking member positioned between said spreader frame and said at least one telescopic beam for stopping the telescopic movement of said at least one telescopic beam in-relation to said frame, said locking member including a locking point comprising a drive ramp and a form-locking groove, and a locking part including a locking roller fitting into the form-locking groove and a locking spring locking the locking roller in said form-locking groove the compression force of the locking spring being adjustable, with a magnet;
 - at least one twistlock in said at least one telescopic beam having a locked and unlocked position;
 - a joint multi-rope ~~lever~~ system for performing the telescopic movement of said at least one telescopic beam and also for actuating said at least one twistlock;
 - at least one actuator operating said joint multi-rope ~~lever~~ system; and
 - a control system for supervising and controlling the operations of said at least one actuator and said joint multi-rope ~~lever~~ system.

5. (Currently Amended) The spreader system according to claim 11, wherein the multi-rope ~~lever~~ system is common to both the telescopic beams of the spreader, and that different rope forces may be generated to the multi-rope ~~lever~~ system with one actuator.

6. (Currently Amended) The spreader system according to claim 5, wherein said actuator generates an external force directed to the telescopic beams, said external force being partly neutralized by the elasticity of the multi-rope ~~lever~~ system and partly neutralized by the interaction between the locking point of the telescopic beams and the locking unit of the frame.

7. (Canceled)

8. (Withdrawn) Method for controlling the telescopic movements of the telescopic beams (3) in the spreader (1) and the locking movements of the twistlocks (6) in the telescopic beams by a joint multi-rope lever system (4), characterized in that

- as one wishes to move the telescopic beams (3) telescopically outwards or inwards in relation to the frame (2) of the spreader, the first locking member (8) between both the telescopic beams of the spreader and the frame is opened, the locking member including the locking unit (82) of the frame and the first locking point (81) of the telescopic beam; and the first rope force is generated to the multi-rope lever system (4) of the telescopic beams in the spreader for moving the telescopic beams in relation to the frame of the spreader;

- as the second locking points (81) in the telescopic beams (3) arrive at the place of the locking unit (82) of the spreader frame, the second rope force is generated to the multi-rope lever system (4), which force differs from the first rope force, and with which second force the second locking points (81) of the telescopic beams may be transferred to the locking unit (82) of the frame;

- as the second locking member with the second locking point (81) of the telescopic beam and the locking unit (82) of the spreader frame has been locked, the third rope force is

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generated to the multi-rope lever system for closing and/or opening the twistlocks (6), the third rope force being different from the first and the second rope force.

9. (Withdrawn) Method according to claim 8, characterized in that the operation of the multi-rope lever system (4) is controlled with the help of the control logic of the control system (9) and the frequency converter, and that the deviations in rope forces are calculated and reported on the basis of the detected rope forces in the lever system and the target values for the rope forces.

10. (Withdrawn) Method according to one of the claims 8 - 9, characterized in that as an external impact in the direction of the longitudinal axis of the telescopic beams hits the telescopic beams (3), causing the telescopic beams to move from the first telescopic beam position in relation to the frame into the second telescopic beam position in relation to the frame, the elastic strain accumulated to the lever system (4) returns the telescopic beams to their initial position together with the locking member (8).

11. (Currently Amended) A spreader system for lifting containers comprising:
a spreader frame including a locking unit disposed thereon;
at least one telescopic beam telescopically movable in said spreader frame, said beam including at least one locking point disposed thereon, said locking point being engageable with said locking unit of said frame for releasably locking said at least one telescopic beam in relation to said frame;
at least one twistlock in said at least one telescopic beam having a locked and unlocked position;
a joint multi-rope ~~lever~~ system for performing the telescopic movement of said at least one telescopic beam and also for actuating said at least one twistlock;
at least one actuator operating said joint multi-rope ~~lever~~ system, said actuator applying a first rope force on said multi-rope system for telescopically moving said beam in said spreader frame, a second rope force on said multi-rope system for moving said locking

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point of said beam into engagement with said locking unit of said frame, and a third rope force on said multi-rope system for actuating said twistlock when said locking point of said beam is engaged with said locking unit of said frame, said third rope force being greater than said second rope force and said second rope force being greater than said first rope force; and

a control system for supervising and controlling the operations of said at least one actuator and said joint multi-rope ~~lever~~ system.